

# Homework 3

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The following table gives the elongation  $e$  in inches (in./in.) for a given stress  $S$  on a steel wire measured in pounds per square inch (lb/in.<sup>2</sup>). Test the models  $e = c_1 S$  by plotting the data. Estimate  $c_1$  graphically.

Table 1:											
$S(x10^{-3})$	5	10	20	30	40	50	60	70	80	90	100
$e(x10^5)$	0	19	57	94	134	173	216	256	297	343	390

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For each of the following data sets, formulate the mathematical model that minimizes the largest deviation between the data and the line  $y = ax + b$ . If a computer is available solve for the estimates of  $a$  and  $b$ .

Table 2:						
x	1	2.3	3.7	4.2	6.1	7.0
y	3.6	3.0	3.2	5.1	5.3	6.8

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